A LIST OF THE PRINCIPAL COLOURS USED IN PAINTING,

WITH NOTICES OF THEIR CHEMICAL AND ARTISTICAL PROPERTIES.

By WILLIAM LINTON.

MINERAL. — ALL THESE COLOURS MAY BE SAFELY USED AS PERMANENT ONES.

		Colours.	Chemical Designation.	Preparation.	Chemical Characteristics.	Artistical Properties.	Additional Colours,—with Remarks.
Carb. Min.	WHITES	Flake White	Carbonate of Lead, with An excess of Oxide.	Plates of Lead exposed to the action of Vinegar Steam in beds of Fermenting Tan.	Blackened by Sulphuretted Hydrogen, Hydro-Sulphuret of Ammonia, and other foul gases, common to most domestic atmospheres; for which reason a rapidly drying and protective vehicle is essential to seal it up against such evil influences. It has no injurious action upon Vegetable and other colours, as some have conjectured. It is perfectly soluble in diluted Nitric or Acetic Acid, when free from Pipe clay or Sulphate of Barytes.	The best White extant for Oil or Resin vehicles when pure, which is generally ascertained by its exceeding whiteness and opacity. Its usual adulterations are Sulphate of Barytes, Chalk, Pipe-clay, &c., all of which are partially transparent, and consequently appear darker in unctuous or resinous vehicles.	There are other Whites of Lead, varying in body and brilliancy, and equally obnoxious to the action of mephitic vapours; as *Krems*, *Roman*, and *Venetian Whites*, and *Sulphate of Lead*. The Whites of *Bismuth*, *Pearl*, and *Antimony* are injured by light, as well as by mephitic vapours. Those of *Zinc*, *Tin*, *Barytes*, and *Strontian*, although they are comparatively secure against the foul gases, are too feeble in body to be satisfactory in unctuous or resinous vehicles.
	YELLOWS.	Cadmium Yellow	Sulphuret of Cadmium.	A combination of Cadmium and Sulphur.	Resists the action of the foul gases, light, &c. It is a most durable and brilliant colour.	A beautiful Orange tinted Yellow, of an excellent body; and an admirable substitute for Naples Yellow, the Chromes, and other Mineral Yellows, which are liable to injury from noxious vapours, light, &c.	There are other Mineral Yellows, but they are all more or less objectionable. The *Chromates of Lead*, like all preparations of that metal, are blackened by the foul gases. The *Chromate of Barytes* is strongly acted upon by light. The united Oxides of Lead and Antimony furnish *Naples Yellow*, a colour readily affected by Sulphuretted Hydrogen, and other foul gases, as well as by light, and by a moist steel spatula. *Turbith Mineral* or Subsulphate of Mercury is rapidly blackened by light, and by the foul airs. *Orpiment*, or *King's Yellow* (Arsenic and Sulphur) is equally destructible; also *Patent Yellow* (Lead and Salts heated violently.)
		Strontian Yellow	Chromate of Strontian.	A Solution of Strontian added to one of Chromate of Potash.	Resists the action of the foul gases and light, and is perfectly durable.	A pale Canary Yellow;—another safe substitute for the faulty Yellows mentioned above.	
	REDS.	Yellow Ochre Oxford Ochre Roman Ochre Stone Ochre Brown Ochre Terra di Sienna Umber	Oxides of Iron.	Native Earths, consisting of Silica and Alumina coloured by Oxide of Iron.	All Permanent Colours, whether Native or Calcined.	The Oxides of Iron are among the most staple colours of the palette. When properly washed and prepared for Oil painting they are incapable of injuring other colours, and may be said to constitute the soundest materials with which the Chemistry of Nature has furnished the painter for the imitation of her works.	The Vegetable Yellows are not to be depended upon. They soon disappear when applied in delicate tints or thin glazings, especially if subjected to the action of the Solar rays (a summary mode of ascertaining the probable results of lengthened periods in subdued lights.) *Gamboge* made by Æther or Alcohol, is equally fugitive.
		Jaune de Mars		A Chemical Preparation.			
		Light Red		Yellow Ochre, calcined.			There are other Mineral Reds which are durable; but they are of inferior quality and are not needed. *Native Cinnabar* is inferior in every respect to Vermilion. *Venetian Red* is an inferior representative of Indian Red, and *Colcothar* a still coarser one. *Red Lead* blackens in oil; and *Iodide of Mercury* has no claim to durability.
		Indian Red		A Native Earth.			Among Vegetable Reds, the *Madders* have the best reputation for standing. All Vegetable colours however should be looked upon with suspicion.
		Vermilion	Bisulphuret of Mercury.	Mercury and Sulphur sublimed together.	A perfectly permanent Colour, not affected by Acids or Caustic Alkalies. Vaporized by a red heat if pure.	A beautiful colour, and of an excellent body.	
	BLUES.	Native Ultramarine	Consists of Silica, Alumina, Lime, Soda and Potash, Oxide of Iron, Magnesia, Sulphuric Acid, Sulphur and Chlorine, (according to Gmelin, Varrentrapp, and others) in its native state.	Prepared from a Mineral called Lapis Lazuli.	Acids, which will not affect other Mineral Blues, will destroy the colour in Ultramarine.—This is one of its best Chemical Tests. None of the mephitic gases, or light, or other pigments do it any injury. It is perfectly durable.	A most invaluable pigment; too well known and appreciated to require any comment.	There are other Mineral Blues, but they are better avoided when the Ultramarines are available. The Oxide of Cobalt and Alumina form *Cobalt Blue*; and the Oxide of Cobalt and Glass form *Smalt*: they are both blackened by foul airs. *Prussian* and *Antwerp Blues* are in much use from the want of a permanent deep blue: they are injured by light and alkalies. *Indigo* is inferior in colour, and very fugitive.
		Artificial Ultramarine	It is regarded as a compound of Silicate of Alumina, Silicate of Soda, with Sulphuret of Sodium; the colour is owing to the reaction of the latter on the two former constituents.	Prepared by several difficult processes, some of which are kept secret by the makers.	Responds to the same tests as the Native Mineral.	A cheap and really valuable substitute for the Native product. The best is that which is the least purple in its tint.	
	GREENS.	Chrome Green	Sesquioxide of Chromium.	When Chromate of Mercury (the Orange Precipitate on mixing Nitrate of Mercury and Chromate of Potash) is strongly ignited, Oxide of Chromium remains in a powder.	A permanent colour in all respects. (The colouring matter of *Emeralds*).	An opaque light Green, of a full body.	There are other Mineral Greens. Those of Copper, the *Emerald Green*, and *Mineral Green*, are very insecure in Oil vehicles.
		Terra Verte	Oxide of Copper.	Native Minerals.	Both quite permanent—Native or Calcined.—Like the Ultramarines, Acids destroy their colours.	Beautiful delicate Greens; deservedly favourite pigments with most painters.	
		Malachite	Carbonate of Copper, united with Silicate.				
Veg. Ani.	BROWNS.	Vandyke Brown Cologne Earth	Decomposed Vegetable Matter.	Decayed Wood, Peat, or Bog Earth.	These Browns are reputed permanent in themselves, the opacity with which time generally invests them in pictures, being attributable probably to a loss of translucency in the vehicle, rather than to any change in the pigments: dark colours making the defect more evident than light ones.	Dark transparent Browns.	The dark Browns, though chiefly of Vegetable *origin*, seem to be the only deep transparent colours which have the reputation of being permanent. The deep Reds, Yellows, Greens, and Blues, are all more or less of a fugitive nature.
		Mummy	Vegetable and Animal Matter combined.	White Pitch and Myrrh, with Animal Matter.			
		Asphaltum	Bitumen.	A Mineral Pitch or Resin, found floating on the Dead Sea: also after the distillation of Natural Naptha.			
	BLKS	Ivory Black	Animal Matter.	Calcined Ivory.	A perfectly durable pigment.	Of a Brownish-black tint.	
		Blue Black	Vegetable Matter.	Calcined Vine Stalks, Cocoa Nut Shells, &c.	Quite durable when the blue tint is natural.	Of a Bluish-black tint.	

In recording the defects and liabilities of Colours, it should not be forgotten that the Painter's Vehicle or Diluent must have considerable effect in preventing Chemical Action among such as are inimical to each other, by isolating and sustaining their component particles from mutual contact. And if the Vehicle be of a sound and firmly drying quality, even the external attacks from damp and foul airs, to which many of the objectionable Colours are liable, may often be successfully resisted. But should the Vehicle be of a showy and impure character, instead of being a protector, it may become in itself an originator of mischief among the Colours.

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